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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,889	11/14/2003	Benjamin Levinson	331640-73	1106

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EXAMINER	
KRISHNAN, GANAPATHY	
ART UNIT	PAPER NUMBER
1623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,889	LEVINSON ET AL.	
	Examiner	Art Unit	
	Ganapathy Krishnan	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *49-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49-70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The amendment filed 8/25/2009 has been received, entered and carefully considered. The following information has been made of record in the instant amendment:

1. Claims 1-48 have been canceled.

2. New Claims 49-70 have been added.

3. Remarks drawn to rejections under 35 USC 103(a).

The rejection of Claims 2-5, 8-10 and 34-48 under 35 U.S.C. 103(a) as being unpatentable over Robinson (US Patent Pub. No. 2003/0100752) in view of Drummond (Annals of New York Academy of Sciences, 1987, 514, 87-95) and Bettelheim et al (General, Organic and Biochemistry, 1998, page 596) has been rendered moot by cancellation of the said claims.

New Claims 49-70 are pending in the case.

The following rejections are made of record necessitated by amendment.

Claim Objections

Claim 67 is objected to because of the following informalities: Claim 67 is seen as a duplicate of claim 56. According to applicants teaching in the Specification (page 1 paragraph 0003) the compound claimed in instant claim 67 is the same as the structural formula recited in instant claim 56. Both claims are claiming the same method of use for the same active agent recited in each claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 67-70 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treating psoriasis and hyperbilirubenemia using the tine mesoporphyrin aminoacid complex, does not reasonably provide enablement for treatment of any heme metabolism disorder as instantly claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

A conclusion of lack of enablement means that, based on the evidence regarding each of the factors below, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation.

The instant specification fails to provide information that would allow the skilled artisan to fully practice the instant invention without ***undue experimentation***. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

(1) The nature of the invention
(2) The state of the prior art
(3) The relative skill of those in the art
(4) The predictability or unpredictability of the art
(5) The breadth of the claims
(6) The amount of direction or guidance presented
(7) The presence or absence of working examples; and
(8) The quantity of experimentation necessary.

The most relevant factors are discussed below.

The nature of the invention

The instant invention pertains to a tin mesoporphyrin complexed to at least one aminoacid, its compositions and use of the same for the treatment of heme metabolism disorders.

The breadth of the claims

Instant claim 67 recites the terms heme metabolism disorder. The said terms are broad and are seen to include several disorders including those unknown at the time of filing of the instant claims.

The amount of direction provided or guidance presented by the inventor

The instant specification, at page 1, paragraph 3, the use of tin mesoporphyrin for the treatment of psoriasis and hyperbilirubenemia. There are no other related treatable disorders mentioned or references provided either.

The level of Predictability or Unpredictability in the Art

It is noted that the pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed. Prior art Kappas' et al, used in the rejection below, teaches the use of the uncomplexed tin mesoporphyrin (same as the one instantly claimed) in a method of treatment of psoriasis and hyperbilirubenemia. Kappas is silent regarding the use of the same active agent in any other heme metabolism disorders. Based on the teachings of the prior art it is highly unpredictable that the instant complex would treat all other heme metabolism disorders.

The presence or absence of working examples

The working examples set forth in the instant specification are drawn to the preparation and characterization of the complexes of tin mesoporphyrin with several amino acids. There are

no examples of the use of these complexes in any experiments that show their therapeutic potential for the treatment of heme metabolic disorders. Thus, the specification fails to provide clear and convincing evidence in sufficient support of the claimed method of treatment. As a result, it necessitates one of skill to perform an exhaustive search for the embodiments of using the complexes as recited in the instant claims suitable to practice the claimed invention.

The quantity of experimentation needed to make or use the invention based on the content of the disclosure

Indeed, in view of the information set forth, the instant disclosure is not seen to be sufficient to enable the treatment of any heme metabolism disorder as broadly encompassed by the recitation in the instant claims. One of ordinary skill in the art would have to carry out undue experimentation to practice the instant invention. Since various disorders have different etiologies one of ordinary skill in the art would be required to perform undue experimentation to determine which, if any, of the myriad disorders can be treated using the complexes as instantly claimed.

Genentech, 108 F.3d at 1366, states that "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "patent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

Therefore, in view of the *Wands* factors discussed above, to practice the claimed invention herein, a person of skill in the art would have to engage in *undue experimentation*, with no assurance of success.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 49-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kappas et al (US 4,782,049, '049, newly cited) in view of Kappas et al (US 4,657,902, '902, newly cited), Allen (US 4,708,964, newly cited) and Bettelheim et al (General, Organic and Biochemistry, 1998, page 596, of record).

Kappas et al ('049) teaches tin mesoporphyrin, its pharmaceutical compositions comprising a carrier and the concentration of the tin mesoporphyrin in the compositions, which can be about 1mg/ml to about 50mg/ml. The composition comprising the tin mesoporphyrin is useful for the treatment of psoriasis in humans (col. 1, line 65 through col. 2, line 37).

Kappas et al ('902), drawn to tin mesoporphyrin, teaches its use to suppress hyperbilirubenemia (col. 4, line 41 through col. 6, line 60). Kapas teaches that the tin mesoporphyrin can be made as a composition in aqueous media (col. 6, lines 13-15). This means that the compound is water soluble. The teaching of Kappas regarding the use of the tin mesoporphyrins is also acknowledged by applicants in the instant specification at page 1, paragraph 3. However, both the references above do not teach or suggest tin mesoporphyrins complexed with at least one amino acid in solid form and the use of the complex for treating heme metabolism disorder like psoriasis and hyperbilirubenemia.

Allen teaches the use of his compounds of formula I which are complexed to amino acid residue for the treatment of psoriasis (col. 3, lines 35-39; line 63; col. 4, lines 1 and 4; col. 7, lines 58-63). Even though Allen's compound is not a porphyrin complexed to an amino acid his teaching shows that amino acids can be complexed to compounds known to be useful for treating psoriasis.

Bettelheim in general teaches that amino acids exist as zwitterions and are polar. This renders them water soluble. From this teaching one of ordinary skill in the art will recognize that complexing the tin-mesoporphyrins of Kappas with amino acids will enhance their solubility.

Based on the teachings of the prior art above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make tin mesoporphyrins

comprising amino acid residues complexed to the porphyrins and their compositions and use them in a method of treatment of heme metabolism disorder like psoriasis and hyperbilirubinemia with a reasonable amount of success since the use of tine mesoporphyrin and the use of aminoacids for such treatments is seen to be taught individually in the prior art.

One of ordinary skill in the art would be motivated to make tin mesoporphyrins as instantly claimed because both components are taught individually in the prior art for treating heme metabolism disorders and complexing amino acids to the tin mesoporphyrin would enhance its aqueous solubility and hence its bioavailability. It is well within the skill level of the artisan to use all the known aminoacids for making the complex with tin mesoporphyrin in order to look for other active complexes of tin mesoporphyrin.

Conclusion

Claims 49-70 are rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathy Krishnan whose telephone number is 571-272-0654. The examiner can normally be reached on 8.30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 1623

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